Bruhat Bangalore Mahanagara Palike

Executive Engineer

Bytarayanapura Division

QUALITY REPORT

(6th & Part Bill)

Name of Work : PACKAGE NO-6 (CONSIST OF 14 WORKS)

Est. Cost: 1500.00 LAKHS
Job Code: 009-23-000003

MECADEZ
Insight Makes It Happen

Mecadez Core Technologies Private limited
Project Management Consultancy Services

Registered Office: No.80, Aniketana,14th 'B' Main, West of Chord Road, 2nd Stage, 2nd Phase, Mahalakshmipuram, Bengaluru-560086
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Mecadez Core Technologies Private Limited

Project Management Consultancy Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: Package No.06 Consists of 14 Works

Job No: MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR

Contractor M/s SMLP Aspahalts

Sl. No	Particulars of the Tests	Plain Cement Concrete (1:3:6)			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
I	**Cement**	15.28	OPC 43 Grade		
1	Consistency test		1Test / Source of Supply	1	1
2	Fineness test		1Test / Source of Supply	1	1
3	Soundness test		1Test / Source of Supply	1	1
4	Compressive strength test				
i	7-days		1Test / Source of Supply	1	1
ii	28-days		1Test / Source of Supply	1	1
II	**Fine Aggregates**				
5	Gradation test		1Test / Day	1	1
III	**Coarse aggregates**				
6	Gradation test		1Test / Day	1	1
7	Water absorption test		Regular Intervals	1	1
8	Impact test		1Test / Source of Supply	1	1

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

Mecadez Core Technologies Private Limited Consultant

Contractor

ASSISTANT ENGINEER

ASSISTANT EXE ENGINEER
Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Consistency test

Project Name	Package No.06 Consists of 14 Works
Client	Exceeutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (Part 5) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Location	Source of Material
Material	Cement
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	27-Nov-2022

Sl. No.	Description	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1	Weight of Cement	400	400	400	400	400
2	Percentage of water added (%)	27	28.5	29.5	30	31
3	Weight of Water (gm)	108	114	118	120	124
4	Initial Reading of Plunger (mm)	40	40	40	40	40
5	Difference (mm)	21	19	17	16	5

Results: Standard Consistency of Cement: 31.00%

Note:

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iv. Any query regarding the report must be reported immediately.

For Mecadez Core Technologies Private Limited

Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Fineness test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (Part 5) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Location	Source of Material
Material	Cement
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	27-Nov-2022

Sl. No.	Determination	Trial 1	Trial 2
1	Weight of Cement before sieve (gm)	100	100
2	Weight of residue retained on 90um sieve (gm)	6.4	5.8
3	Percentage retained (%)	6.4	5.8
4	Average Percentage retained (%)	6.10	

Results: Residue of cement is: 6.10%
Comments: Maximum allowable residue by mass for ordinary portlad cement is 10%
Note:

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Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Soundness test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (Part 3) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Location	Source of Material
Material	Cement
Sample No	1
Sample Collection Date	26/Nov/2022 .
Testing Date	27-Nov-2022

Sl. No.	Description	Trial 1	Trial 2	Trial 3
1	Initial Distance between the indicator points of Lechatelier mould	11	10	11
2	Final Distance between the indicator points of Lechatelier mould	19	17	16
3	Difference or expansion	8	7	5
4	Average Differences or Expansion in mm		6.67	

Results: Difference in Expansion of Cement: 6.67 mm
Comments: Maximum allowable Expansion of cement is 10 mm.

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Compressive strength test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Source of Material
Material	Cement
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	8-Dec-2022

Cube	Cement Grade	Age at Test (Days)	Slump (mm)	Weight (kg)	Dimension (LxWxH)	Density (kg/m3)	Max. Load (KN)	Area (mm2)	Compressive Strength (N/mm2)	Average Sample (N/mm2)
1	43	7	-	0.854	70.6x70.6x70.6	2302	176	4984.36	35.31	35.61
2	43	7	-	0.894	70.6x70.6x70.6	2415	179	4984.36	35.91	

Results: 7-days Compressive strength of cement is 34.61 N/mm^2

Comments: 7-days Compressive strength of cement should not be less than 33 N/mm^2

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Compressive strength test

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Source of Material
Material	Cement
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	29-Dec-2022

Cube	Cement Grade	Age at Test (Days)	Slump (mm)	Weight (kg)	Dimension (LxWxH)	Density (kg/m3)	Max. Load (KN)	Area (mm2)	Compressive Strength (N/mm2)	Average Sample (N/mm2)
1	43	28	-	0.897	70.6x70.6x70.6	2287.00	212	4984.36	42.53	44.44
2	43	28	-	0.845	70.6x70.6x70.6	2316.00	231	4984.36	46.34	

Results: 28-days Compressive strength of cement is 44.44 N/mm^2

Comments: 28-days Compressive strength of cement should not be less than 43 N/mm^2

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Gradation test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Source of Material
Material	Fine Aggregates
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	28-Nov-2022

Weight of Sample(gram): 200

Sl No.	IS Sieve Size	Weight retained	% retained	% Cumulative	Cumulative % of Passing		Remarks
					% Passing	Gradation limits	
1	10 mm	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Zone II Specification for PCC
2	4.75 mm	16.22	8.11	8.11	91.89	90-100	
3	2.36 mm	14.25	7.13	15.24	84.77	75-100	
4	1.18 mm	32	16.00	31.24	68.77	55-90	
5	600 µ	54	27.00	58.24	41.77	35-59	
6	300 µ	65	32.50	90.74	9.27	8-30	
7	150 µ	10	5.00	95.74	4.27	0-10	

Note:

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Mecadez Core Technologies Private Limited

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Gradation test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev.
Location	Source of Material
Material	Coarse aggregates
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	28-Nov-2022

Weight of Sample: 4000 gms

Sl. No	I.S. Sieve size	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	31.50	0	0.00	0.00	100.00	100	
2	26.50	369	9.23	9.23	90.78	85-95	
3	19.00	455	11.38	20.60	79.40	68-88	
4	9.50	891	22.28	42.88	57.13	45-65	
5	4.75	624	15.60	58.48	41.53	30-55	
6	0.60	852	21.30	79.78	20.23	8-30	
7	0.15	435	10.88	90.65	9.35	5-15	
8	0.08	324	8.10	98.75	1.25	0-5	

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Water absorption test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 3) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Source of Material
Material	Coarse aggregates
Sample No	1
Sample Collection Date	26/Nov/2022
Testing Date	28-Nov-2022

Sl. No.	Particulars	Computations	Test Numbers		Mean
			Test 1	Test 2	
1	Weight of SSD sample	W_1 g	763	763	
2	Wt of Basket Filled with Aggregates Immersed in water	W_2g	2047	2061	
3	Weight of Saturated Aggregate in water	W_sg = W_2- W_1	1284	1298	
4	Weight of saturated surface dry aggregate in Air	W_3 g	2082	2086	
5	Weight of water equal to the Volume of the Aggregate	W_3- W_s	798	788	
6	Weight of Oven dried Aggregate	W_4g	2043	2052	
7	Specific Gravity	W_4/(W_3- W_s)	2.56	2.60	2.58
8	Apparent Specific Gravity	W_4/(W_4- W_s)	2.69	2.72	2.71
9	Water Absorption	(W_4- W_3)*100/ W_4	1.91	1.66	1.79

Comments: Maximum allowable Aggregate Water Absorption value is 2.0%.

Note:

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Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Impact test

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Plain Cement Concrete (1:3:6)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 4) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Source of Material
Material	Coarse aggregates
Sample No	1
Sample Collection Date	26/Nov/2022 .
Testing Date	28-Nov-2022

Sl. No.	Determination	Unit	Trails	
1	Weight of empty cylinder, w1	gm	960	960
2	Weight of container filled with Aggregate, w2	gm	1248	1342
3	Weight of the Aggregate before compaction, (w2 - w1) = w3	gm	288	382
4	Weight of the sample passing through 2.36 mm IS sieves after Impact, w4	gm	90	92
5	Weight of the sample retained on 2.36 mm IS sieve after Impact, w5	gm	198	290
6	Aggregate Impact Value (w4 / w3)x100	%	31.25	24.08
7	Specified Limit	%		45.00

Results: Average Aggregate Impact Value: **27.67 %**

Note:

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For Mecadez Core Technologies Private Limited

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Mecadez Core Technologies Private Limited

Project Management Consultancy Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **Package No.06 Consists of 14 Works**

Job No: **MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR**

Contractor **M/s SMLP Aspahalts**

Sl. No	Particulars of the Tests	M20 Concrete For Drain Raft			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
IV	Concrete				
1	Compressive strength test	39.67	1 to 5cum=1 sample 6 to 15 cum=2 sample 16 to 30cum=3 smaple 31 to 50cum= 4 sample 51cum and above= one additonal sample for every additional 50 cum or part therof	3	3
	7-days				
	28-days				

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

Mecadez Core Technologies Priv. Ltd. Consultant

Contractor

ASSISTANT ENGINEER

ASSISTANT EXE ENGINEER

Assistant Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	1
Casting Date	3-Dec-2022
Tested Date	10-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	8.14	150*150*150	2411.85	326.00	0.0225	14.49	14.37	14.44
2	20	7	8.25	150*150*150	2444.44	320.00	0.0225	14.22		
3	20	7	8.36	150*150*150	2477.04	324.00	0.0225	14.40		
4	20	7	8.69	150*150*150	2574.81	329.00	0.0225	14.62	14.50	
5	20	7	8.47	150*150*150	2509.63	321.00	0.0225	14.27		
6	20	7	8.58	150*150*150	2542.22	329.00	0.0225	14.62		

Results: 7-days Compressive strength of Concrete is 14.44 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	2
Casting Date	3-Dec-2022
Tested Date	10-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	9.00	150*150*150	2666.67	333.00	0.0225	14.80	14.52	14.50
2	20	7	7.84	150*150*150	2322.96	326.00	0.0225	14.49		
3	20	7	7.82	150*150*150	2317.04	321.00	0.0225	14.27		
4	20	7	7.91	150*150*150	2343.70	329.00	0.0225	14.62	14.49	
5	20	7	8.33	150*150*150	2468.15	324.00	0.0225	14.40		
6	20	7	7.55	150*150*150	2237.04	325.00	0.0225	14.44		

Results: 7-days Compressive strength of Concrete is 14.50 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	3
Casting Date	3-Dec-2022
Tested Date	10-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	9.09	150*150*150	2693.33	335.00	0.0225	14.89	14.61	14.59
2	20	7	7.93	150*150*150	2349.63	328.00	0.0225	14.58		
3	20	7	7.91	150*150*150	2343.70	323.00	0.0225	14.36		
4	20	7	8.00	150*150*150	2370.37	331.00	0.0225	14.71	14.58	
5	20	7	8.42	150*150*150	2494.81	326.00	0.0225	14.49		
6	20	7	7.64	150*150*150	2263.70	327.00	0.0225	14.53		

Results: 7-days Compressive strength of Concrete is 14.59 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

Note:

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Mecadez Core Technologies Private Limited

Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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ACCAB Accredited QMS 1002
QMS ISO 9001:2015
9001:2015 & ISO/IEC 27001:2013
uality Management System
Certified Company

MECADEZ
Insight Makes It Happen
MECADEZ CORE TECHNOLOGIES PRIVATE LIMITED
PROJECT MANAGEMENT CONSULTANCY SERVICES

Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	1
Casting Date	3-Dec-2022
Tested Date	31-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	8.64	150*150*150	2560.00	462.00	0.0225	20.53	20.47	20.54
2	20	28	8.25	150*150*150	2444.44	455.00	0.0225	20.22		
3	20	28	8.64	150*150*150	2560.00	465.00	0.0225	20.67		
4	20	28	8.47	150*150*150	2509.63	470.00	0.0225	20.89	20.61	
5	20	28	8.69	150*150*150	2574.81	450.00	0.0225	20.00		
6	20	28	8.19	150*150*150	2426.67	471.00	0.0225	20.93		

Results: 28-days Compressive strength of Concrete is 20.54 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	2
Casting Date	3-Dec-2022
Tested Date	31-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	8.47	150*150*150	2509.63	465.00	0.0225	20.67	20.30	20.45
2	20	28	7.84	150*150*150	2322.96	450.00	0.0225	20.00		
3	20	28	7.64	150*150*150	2263.70	455.00	0.0225	20.22		
4	20	28	7.99	150*150*150	2367.41	461.00	0.0225	20.49	20.61	
5	20	28	7.49	150*150*150	2219.26	459.00	0.0225	20.40		
6	20	28	7.55	150*150*150	2237.04	471.00	0.0225	20.93		

Results: 28-days Compressive strength of Concrete is 20.45 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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PROJECT MANAGEMENT CONSULTANCY SERVICES

Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Raft
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	3
Casting Date	3-Dec-2022
Tested Date	31-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	8.56	150*150*150	2536.30	467.00	0.0225	20.76	20.39	20.54
2	20	28	7.93	150*150*150	2349.63	452.00	0.0225	20.09		
3	20	28	7.73	150*150*150	2290.37	457.00	0.0225	20.31		
4	20	28	8.08	150*150*150	2394.07	463.00	0.0225	20.58	20.70	
5	20	28	7.58	150*150*150	2245.93	461.00	0.0225	20.49		
6	20	28	7.64	150*150*150	2263.70	473.00	0.0225	21.02		

Results: 28-days Compressive strength of Concrete is 20.54 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **Package No.06 Consists of 14 Works**

Job No: **MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR**

Contractor **M/s SMLP Aspahalts**

Sl. No	Particulars of the Tests	M20 Concrete For Drain Wall			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
IV	Concrete				
1	Compressive strength test	77.50	1 to 5cum=1 sample 6 to 15 cum=2 sample 16 to 30cum=3 smaple 31 to 50cum= 4 sample 51cum and above= one additonal sample for every additional 50 cum or part therof	5	5
	7-days				
	28-days				

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

Mecadez Core Technologies Private Limited
consultant

Contractor

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ASSISTANT EXE ENGINEER
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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Exceeutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	1
Casting Date	9-Dec-2022
Tested Date	16-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	8.69	150*150*150	2574.81	320.00	0.0225	14.22	14.37	14.41
2	20	7	8.19	150*150*150	2426.67	326.00	0.0225	14.49		
3	20	7	8.34	150*150*150	2471.11	324.00	0.0225	14.40		
4	20	7	8.57	150*150*150	2539.26	327.00	0.0225	14.53	14.46	
5	20	7	8.34	150*150*150	2471.11	328.00	0.0225	14.58		
6	20	7	7.88	150*150*150	2334.81	321.00	0.0225	14.27		

Results: 7-days Compressive strength of Concrete is 14.41 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	2
Casting Date	9-Dec-2022
Tested Date	16-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	7.88	150*150*150	2334.81	332.00	0.0225	14.76	14.50	14.49
2	20	7	7.95	150*150*150	2355.56	321.00	0.0225	14.27		
3	20	7	7.84	150*150*150	2322.96	326.00	0.0225	14.49		
4	20	7	7.64	150*150*150	2263.70	322.00	0.0225	14.31	14.47	
5	20	7	7.84	150*150*150	2322.96	330.00	0.0225	14.67		
6	20	7	7.94	150*150*150	2352.59	325.00	0.0225	14.44		

Results: 7-days Compressive strength of Concrete is 14.49 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	3
Casting Date	9-Dec-2022
Tested Date	16-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	7.97	150*150*150	2361.48	334.00	0.0225	14.84	14.59	14.58
2	20	7	8.04	150*150*150	2382.22	323.00	0.0225	14.36		
3	20	7	7.93	150*150*150	2349.63	328.00	0.0225	14.58		
4	20	7	7.73	150*150*150	2290.37	324.00	0.0225	14.40	14.56	
5	20	7	7.93	150*150*150	2349.63	332.00	0.0225	14.76		
6	20	7	8.03	150*150*150	2379.26	327.00	0.0225	14.53		

Results: 7-days Compressive strength of Concrete is 14.58 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatnrayannpura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	4
Casting Date	9-Dec-2022
Tested Date	16-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	8.07	150*150*150	2391.11	336.00	0.0225	14.93	14.68	14.67
2	20	7	8.14	150*150*150	2411.85	325.00	0.0225	14.44		
3	20	7	8.03	150*150*150	2379.26	330.00	0.0225	14.67		
4	20	7	7.83	150*150*150	2320.00	326.00	0.0225	14.49	14.65	
5	20	7	8.03	150*150*150	2379.26	334.00	0.0225	14.84		
6	20	7	8.13	150*150*150	2408.89	329.00	0.0225	14.62		

Results: 7-days Compressive strength of Concrete is 14.67 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	5
Casting Date	9-Dec-2022
Tested Date	16-Dec-2022

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	7	8.16	150*150*150	2417.78	338.00	0.0225	15.02	14.77	14.76
2	20	7	8.23	150*150*150	2438.52	327.00	0.0225	14.53		
3	20	7	8.12	150*150*150	2405.93	332.00	0.0225	14.76		
4	20	7	7.92	150*150*150	2346.67	328.00	0.0225	14.58	14.74	
5	20	7	8.12	150*150*150	2405.93	336.00	0.0225	14.93		
6	20	7	8.22	150*150*150	2435.56	331.00	0.0225	14.71		

Results: 7-days Compressive strength of Concrete is 14.76 N/mm2

Comments: 7-days Compressive strength of M20 Concrete should not be less than 14 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	1
Casting Date	9-Dec-2022
Tested Date	6-Jan-2023

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	8.49	150*150*150	2515.56	451.00	0.0225	20.04	20.06	20.47
2	20	28	8.71	150*150*150	2580.74	453.00	0.0225	20.13		
3	20	28	8.34	150*150*150	2471.11	450.00	0.0225	20.00		
4	20	28	8.47	150*150*150	2509.63	471.00	0.0225	20.93	20.89	
5	20	28	8.20	150*150*150	2429.63	469.00	0.0225	20.84		
6	20	28	8.94	150*150*150	2648.89	470.00	0.0225	20.89		

Results: 28-days Compressive strength of Concrete is 20.47 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	2
Casting Date	9-Dec-2022
Tested Date	6-Jan-2023

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	8.95	150*150*150	2651.85	456.00	0.0225	20.27	20.25	20.44
2	20	28	7.63	150*150*150	2260.74	460.00	0.0225	20.44		
3	20	28	8.64	150*150*150	2560.00	451.00	0.0225	20.04		
4	20	28	7.55	150*150*150	2237.04	458.00	0.0225	20.36	20.62	
5	20	28	8.24	150*150*150	2441.48	463.00	0.0225	20.58		
6	20	28	8.64	150*150*150	2560.00	471.00	0.0225	20.93		

Results: 28-days Compressive strength of Concrete is 20.44 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	3
Casting Date	9-Dec-2022
Tested Date	6-Jan-2023

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	9.04	150*150*150	2678.52	458.00	0.0225	20.36	20.34	20.53
2	20	28	7.72	150*150*150	2287.41	462.00	0.0225	20.53		
3	20	28	8.73	150*150*150	2586.67	453.00	0.0225	20.13		
4	20	28	7.64	150*150*150	2263.70	460.00	0.0225	20.44	20.71	
5	20	28	8.33	150*150*150	2468.15	465.00	0.0225	20.67		
6	20	28	8.73	150*150*150	2586.67	473.00	0.0225	21.02		

Results: 28-days Compressive strength of Concrete is 20.53 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	4
Casting Date	9-Dec-2022
Tested Date	6-Jan-2023

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	9.14	150*150*150	2708.15	460.00	0.0225	20.44	20.43	20.61
2	20	28	7.82	150*150*150	2317.04	464.00	0.0225	20.62		
3	20	28	8.83	150*150*150	2616.30	455.00	0.0225	20.22		
4	20	28	7.74	150*150*150	2293.33	462.00	0.0225	20.53	20.80	
5	20	28	8.43	150*150*150	2497.78	467.00	0.0225	20.76		
6	20	28	8.83	150*150*150	2616.30	475.00	0.0225	21.11		

Results: 28-days Compressive strength of Concrete is 20.61 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Test Report
Concrete Compresive strength

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	M20 Concrete For Drain Wall
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Concrete
Sample No	5
Casting Date	9-Dec-2022
Tested Date	6-Jan-2023

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Dimension (LxWxH)	Density (kg/m^3)	Max. Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Sample Strength	Avg. Strength (N/mm2)
1	20	28	9.23	150*150*150	2734.81	462.00	0.0225	20.53	20.52	20.70
2	20	28	7.91	150*150*150	2343.70	466.00	0.0225	20.71		
3	20	28	8.92	150*150*150	2642.96	457.00	0.0225	20.31		
4	20	28	7.83	150*150*150	2320.00	464.00	0.0225	20.62	20.89	
5	20	28	8.52	150*150*150	2524.44	469.00	0.0225	20.84		
6	20	28	8.92	150*150*150	2642.96	477.00	0.0225	21.20		

Results: 28-days Compressive strength of Concrete is 20.70 N/mm2

Comments: 28-days Compressive strength of M20 Concrete should not be less than 20 N/mm2

Note:

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Project Management Consultancy Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **Package No.06 Consists of 14 Works**

Job No: **MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR**

Contractor **M/s SMLP Aspahalts**

Sl. No	Particulars of the Tests	T.M.T Steel of Fe550 Grade			
		Quantity in Tonne	Frequency of Tests	Tests Required	Tests Carried Out
I	Steel				
1	Tensile strength test	7.38	1 sample per source	1	1

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

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CONTRACTOR

ASSISTANT ENGINEER

ASSISTANT EXECUTIVE ENGINEER
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Test Report
Steel

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	T.M.T Steel of Fe550 Grade
Contractor	M/s SMLP Aspahalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Site
Material	T.M.T Steel of Fe550 Grade
Tested Date	3-Dec-2022

Sl. No.	Dia in mm	Weight in Kg/mtr	Average Weight Kg/mtr	Ultimate Load in KN	Ultimate Tensile stress in N/mm^2	Average Ultimate Tensile Stress N/mm^2	Elongation in (%)	Bending and Rebending
1	8	0.395	0.395	29.27	582.00	583.00	18	OK
	8	0.395		29.37	584.00			
2	10	0.617	1.395	46.04	586.00	586.50	18	OK
	10	0.617		46.12	587.00			
3	12	0.889	2.395	66.53	588.00	585.00	18	OK
	12	0.889		65.85	582.00			

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Project Management Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **PACKAGE NO.06 (CONSISTS OF 14 WORKS)**

Job No: **MCTPL/BBMP/EE/BTY/PMC/P-3877/2022-23/QR**

Contractor **M/s. SMLP Asphalts**

Sl. No	Particulars of the Tests	100mm Precast Slab Core Cut			
		Quantity Sqm	Frequency of Tests	Tests Required	Tests Carried Out
	Core Cutting				
1	Compressive strength test	188.91	One Test Per Source of supply	1	1

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

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Test Report
Concrete Compressive strength

Project Name	PACKAGE NO.06 (CONSISTS OF 14 WORKS)
Client	Excecutive Engineer -Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTY/PMC/P-3877/2022-23/QR
Mix Type	100mm Precast Slab Core Cut
Contractor	M/s. SMLP Asphalts
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Test Location	Laboratory
Sample No	1
Tested Date	17-Dec-2022

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (Kg/m³)	H/D	Correction Factor (Based on H/D)	Failure Load (KN)	Core Strength (N/mm²)	Correction Factor for the dia. (Strength of the Core X 1.08)	Corrected Cylinder Compressive Strength (N/mm²)	Equivalent Cube Compressive Strength (N/mm²)
1	100.00	99.48	0.62	793.216	0.9948	0.89	132.314	16.84	18.19	20.40	25.50
2	100.00	98.24	0.61	790.272	0.9824	0.89	131.53	16.74	18.08	20.31	25.39
3	100.00	98.54	0.6	774.951	0.9854	0.89	132.55	16.87	18.22	20.46	25.58

Results: Compressive strength of 100mm thick Precast Slab is 25.49 N/mm2

Note:

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Project Management Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **PACKAGE NO.06 (CONSISTS OF 14 WORKS)**

Job No: **MCTPL/BBMP/EE/BTY/PMC/P-3877/2022-23/QR**

Contractor **M/s. SMLP Asphalts**

Sl. No	Particulars of the Tests	230mm Thick Precast Slab Core Cut			
		Quantity Sqm	Frequency of Tests	Tests Required	Tests Carried Out
	Core Cutting				
1	Compressive strength test	58.35	One Test Per Source of supply	1	1

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

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Test Report
Concrete Compressive strength

Project Name	PACKAGE NO.06 (CONSISTS OF 14 WORKS)
Client	Exceeutive Engineer -Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTY/PMC/P-3877/2022-23/QR
Mix Type	230mm Thick Precast Slab Core Cut
Contractor	M/s. SMLP Asphalts
Test Method	IS : 4031, (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Test Location	Laboratory
Sample No	1
Tested Date	17-Dec-2022

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (Kg/m³)	H/D	Correction Factor (Based on H/D)	Failure Load (KN)	Core Strength (N/mm²)	Correction Factor for the dia. (Strength of the Core X 1.08)	Corrected Cylinder Compressive Strength (N/mm²)	Equivalent Cube Compressive Strength (N/mm²)
1	100.00	98.47	0.62	801.352	0.9847	0.89	132.707	16.89	18.24	20.49	25.61
2	100.00	99.56	0.61	779.795	0.9956	0.89	129.41	16.47	17.79	19.95	24.94
3	100.00	99.42	0.6	768.091	0.9942	0.89	132.16	16.82	18.17	20.38	25.47

Results: Compressive strength of 230mm thick Precast Slab is 25.34 N/mm2

Note:

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Project Management Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: Package No.06 Consists of 14 Works

Job No: MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR

Contractor M/s.SMLP Asphalts,

Sl. No	Particulars of the Tests	Wet Mix Macadam WMM			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
1	Rate of Spread of Prime Coat	306.41	3 Test / Day	3	3
2	Aggregate Impact Value		1 Test / 1000 m^3	1	1
3	Combined Flakiness & Elongation Indices		1Test / 500 m^3	1	1
4	Aggregate gradation		1Test / 200 m^3	2	2
5	Atterberg limits		1Test / 200 m^3	2	2
6	Density of Compacted Layer		1 Test / 1000m^2	1	1

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

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Test Report
Rate of Spread of Prime Coat

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Location	At Site
Material	Emulsion (Prime Coat)
Sample No	1
Tested Date	5-Apr-2023

Sl. No.	Determination	Unit	Test No 1		
			Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.634	1.634	1.634
4	Final weight of plate after application of Tack Coat (c)	kg	1.671	1.672	1.673
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.037	0.038	0.039
6	Rate of spread (d/a)	kg / m^2	0.925	0.950	0.975
7	Average	kg / m^2	0.950		
8	Specified Limit	kg / m^2	Not less than 0.90 kg / m^2		

Results: Rate of Spread of Prime Coat is: 0.950 kg / m2

Note:

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Test Report

Rate of Spread of Prime Coat

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Location	At Site
Material	Emulsion (Prime Coat)
Sample No	2
Tested Date	5-Apr-2023

Sl. No.	Determination	Unit	Test No 1		
			Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.634	1.634	1.634
4	Final weight of plate after application of Tack Coat (c)	kg	1.672	1.672	1.673
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.038	0.038	0.039
6	Rate of spread (d/a)	kg / m^2	0.95	0.95	0.975
7	Average	kg / m^2	0.958		
8	Specified Limit	kg / m^2	Not less than 0.90 kg / m2		

Results: Rate of Spread of Prime Coat is: 0.958 kg / m2

Note:

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Test Report
Rate of Spread of Prime Coat

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Location	At Site
Material	Emulsion (Primer Coat)
Sample No	3
Tested Date	5-Apr-2023

Sl. No.	Determination	Unit	Test No 1		
			Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.634	1.634	1.634
4	Final weight of plate after application of Tack Coat (c)	kg	1.671	1.672	1.673
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.037	0.038	0.039
6	Rate of spread (d/a)	kg / m^2	0.925	0.95	0.975
7	Average	kg / m^2	0.967		
8	Specified Limit	kg / m^2	Not less than 0.90 kg / m2		

Results: Rate of Spread of Prime Coat is: 0.967 kg / m2

Note:

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Test Report
Aggregate Impact Value

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Material	Coarse Aggregate
Test Method	IS : 2386 (Part - 4) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Sample No	1
Sample Collection Date	1-Apr-2023
Tested Date	2-Apr-2023

Sl. No.	Determination	Unit	Trails	
1	Weight of empty cylinder, w1	gm	960	960
2	Weight of container filled with Aggregate, w2	gm	1313	1336
3	Weight of the Aggregate before compaction, (w2 - w1) = w3	gm	353	376
4	Weight of the sample passing through 2.36 mm IS sieves after Impact, w4	gm	91	94
5	Weight of the sample retained on 2.36 mm IS sieve after Impact, w5	gm	262	282
6	Aggregate Impact Value (w4 / w3)x100	%	25.78	25.00
7	Specified Limit	%	30	

Results: Average Aggregate Impact Value: **25.39 %**

Note:

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Test Report
Aggregate Particle Shape

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregates
Sample No	1
Sample Collection Date	1-Apr-2023
Tested Date	2-Apr-2023

I.S. Sieves Size		Weight of Retained Sample on Each Sieve (minimum 200 Pieces) (gm)	Flakiness Index		Elongation Index	
Passing through IS Sieves (mm)	Retained on IS Sieves (mm)		Thickness Gauge	Weight of Aggregates in each fraction passing on thickness gauges (gm)	Length Gauge	Weight of Aggregates in Fraction retained on length gauges (gm)
63.0	50.0	0.0	33.90	0.0	-	0.0
50.0	40.0	0.0	27.00	0.0	81.00	0.0
40.0	25.0	39.45	19.50	0.0	58.50	0.0
31.5	25.0	54.11	16.95	0.0	-	0.0
25.0	20.0	1446.23	13.50	126.23	40.50	144.23
20.0	16.0	1403.02	10.80	82.02	32.40	109.02
16.0	12.5	955.67	8.55	150.67	25.60	157.67
12.5	10.0	569.34	6.75	171.34	20.20	177.34
10.0	6.3	250.49	4.89	72.49	14.70	79.49
	SW	4718.31	SWf	602.75	SWe	667.75

Flakiness Index	12.77	%
Elongation Index	14.15	%

Combined Flakiness and Elongation Indices : 26.93 %

Comments: Maximum allowable Combined Flakiness and Elongation Indices for WMM is 35%

Note:

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Test Report
Aggregate Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Ref. No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregates
Sample No	1
Sample Collection	1-Apr-2023
Date	
Issued Date	2-Apr-2023

Weight of Sample: 11096.78 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	53	0.00	0.00	0.00	100	100	
2	45	234.59	2.11	2.11	97.89	95-100	Gradation satisfies the MORT&H Specification for Wet Mix macadam
3	22.4	2914.36	26.26	28.37	71.63	60-80	
4	11.2	2071.11	18.66	47.03	52.97	40-60	
5	4.75	2198.36	19.81	66.84	33.16	25-40	
6	2.36	1472.3	13.27	80.11	19.89	15-30	
7	0.6	518.64	4.67	84.78	15.22	8-22	
8	0.075	1412.65	12.73	97.51	2.49	0-5	

Note:

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Test Report

Liquid and Plastic Limit by Cone Apparatus

	Package No.06 Consists of 14 Works
Name	Excecutive Engineer - Byatarayanapura Division
	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
	Wet Mix Macadam WMM
	M/s.SMLP Asphalts,
	Specification for Road & Bridge Works, MORT&H, Rev. V.
Method	Laboratory
	1
Collection Date	1-Apr-2023
Date	3-Apr-2023

Sl No	Description	Unit	Liquid Limit	Plastic Limit
	Penetration	mm	Non Plastic	Non Plastic
1	Container No	no		
2	Weight of container,(A)	gm		
3	Weight of container + wet soil, (B)	gm		
4	Weight of container + dry soil, (C)	gm		
5	Weight of water, D=(B - C)	gm		
6	Weight of dry soil, E=(C - A)	gm		
7	Water Content, D/E x 100 (%)	gm		

mm: & so Non Plastic

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Test Report

Liquid and Plastic Limit by Cone Apparatus

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Sample Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Test Method	Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Sample No	2
Sample Collection Date	1-Apr-2023
Report Date	3-Apr-2023

Sl No	Description	Unit	Liquid Limit	Plastic Limit
	Penetration	mm	Non Plastic	Non Plastic
1	Container No	no		
2	Weight of container,(A)	gm		
3	Weight of container + wet soil, (B)	gm		
4	Weight of container + dry soil, (C)	gm		
5	Weight of water, D=(B - C)	gm		
6	Weight of dry soil, E=(C - A)	gm		
7	Water Content, D/E x 100 (%)	gm		

Comments: <6 so Non Plastic

Note:

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For Mecadez Core Technologies Private Limited

Authorised Signature

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Test Report

Field Density Test by Sand Replacement Method

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Test Method	IS: 2720 (Part - 16) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Site
Sample No	1
Tested Date	5-Apr-2023

Test Hole No	1
MDD	2.25
OMC in %	5.5
Bulk Density Ys	1.392
Weight of Sand In cone W1 (gm)	1195
Weight Of Wet soil From Hole (W2)	4921
Wt Of Sand +Cylinder Before Pouring (W3)gm	17000
Wt Of Sand +Cylinder After Pouring (W4) gm	12858
Wt Of Sand In Hole: W5 = W3 - W4- W1 (gm)	2947
Volume of Hole: V= W5/ Ys	2117.10
Bulk Density Yb= W2/V (gm/cc)	2.32
Moisture Meter Reading (%)	5.3
Moisture Content : w (From Graph In %)	-
Dry Density Yd = Yb/(1+W/100)	2.21
Field Compaction(%)	98.11

Note:

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For Mecadez Core Technologies Private Limited

Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report

Field Density Test by Sand Replacement Method

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-09/P-3877/2022-23/QR
Mix Type	Wet Mix Macadam WMM
Contractor	M/s.SMLP Asphalts,
Test Method	IS: 2720 (Part - 16) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Sand
Sample No	2
Tested Date	5-Apr-2023

Test Hole No	2
MDD	2.25
OMC in %	5.50
Bulk Density Ys	1.39
Weight of Sand In cone W1 (gm)	1195.00
Weight Of Wet soil From Hole (W2)	4933.00
Wt Of Sand +Cylinder Before Pouring (W3)gm	17000.00
Wt Of Sand +Cylinder After Pouring (W4) gm	12853.00
Wt Of Sand In Hole: W5 = W3 - W4- .W1 (gm)	2952.00
Volume of Hole: V= W5/ Ys	2120.69
Bulk Density Yb= W2/V (gm/cc)	2.33
Moisture Meter Reading (%)	5.20
Moisture Content : w (From Graph In %)	-
Dry Density Yd = Yb/(1+W/100)	2.21
Field Compaction(%)	98.27

Note:

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Project Management Consultancy Services

Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: **Package No.06 Consists of 14 Works**

Job No: **MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR**

Contractor **M/s SMLP Aspahalts**

Sl. No	Particulars of the Tests	Dense Graded Bituminous Macadam (DBM)			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
1	Quality of Binder	113.58	2 Test / lot	2	2
2	Aggregate Impact Value		1 Test / 350 m^3	1	1
3	Combined Flakiness & Elongation		1 Test / 350 m^3	1	1
4	Aggregate Stripping Value		1Test / Source of Supply	1	1
5	Specific Gravity & Water Absorption of		1Test / Source of	1	1
6	Aggregate gradation		2 Test / day	2	2
7	Marshal Stability of the Mix		1 Test/400 tonnes (Min.2 Test)	2	2
8	Binder content and Mix Gradation		1 Test/400 tonnes (Min.2 Test)	2	2

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

Consultant

Contractor

ASSISTANT ENGINEER

ASSISTANT EXE ENGINEER

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Quality of Bitumen

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 73 – 2013 (Paving Bitumen) & Specification for Road & Bridge Works, MORT&H, Revision V.
Grade of Bitumen	VG30
Location	Hot Mix Plant
Material	Bitumen
Sample No	1
Sample Collection Date	31-Mar-2023
Tested Date	1-Apr-2023

Sl. No.	Description	Test Results	Requirement as per IS:73 - 2013
1	Penetration at 25^{0}C , 1 / 10 mm	49	Min. 45
2	Softening Point, (^{0}C)	51	Min. 47
3	Specific Gravity	0.97	Min. 0.97
4	Ductility at 27^{0}C, in cm	45	Min. 40
5	Flash Point, (^{0}C)	223	Min. 220

Note:

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Test Report
Quality of Bitumen

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 73 – 2013 (Paving Bitumen) & Specification for Road & Bridge Works, MORT&H, Revision V.
Grade of Bitumen	VG30
Location	Hot Mix Plant
Material	Bitumen
Sample No	2
Sample Collection Date	31-Mar-2023
Tested Date	1-Apr-2023

Sl. No.	Description	Test Results	Requirement as per IS:73 - 2013
1	Penetration at 25^{0}C , 1 / 10 mm	52	Min. 45
2	Softening Point, (^{0}C)	53	Min. 47
3	Specific Gravity	0.97	Min. 0.97
4	Ductility at 27^{0}C, in cm	44	Min. 40
5	Flash Point, (^{0}C)	228	Min. 220

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Test Report
Aggregate Impact Value

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 4) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Aggregate
Sample No	1
Sample Collection Date	31-Mar-2023
Tested Date	3-Apr-2023

Sl. No.	Determination	Unit	Trails	
1	Weight of empty cylinder, w1	gm	960	960
2	Weight of container filled with Aggregate, w2	gm	1332	1335
3	Weight of the Aggregate before compaction, (w2 - w1) = w3	gm	372	375
4	Weight of the sample passing through 2.36 mm IS sieves after Impact, w4	gm	91	90
5	Weight of the sample retained on 2.36 mm IS sieve after Impact, w5	gm	281	285
6	Aggregate Impact Value (w4 / w3)x100	%	24.46	24.00
7	Specified Limit	%	27	

Results: Average Aggregate Impact Value: **24.23 %**

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Test Report
Aggregate Particle Shape

roject Name	Package No.06 Consists of 14 Works
lient	Exceeutive Engineer - Byatarayanapura Division
ab No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
ix Type	Dense Graded Bituminous Macadam (DBM)
ontractor	M/s SMLP Aspahalts
est Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
ocation	Laboratory
aterial	Aggregates
ample No	1
ample Collection	31-Mar-2023
ate	
ested Date	3-Apr-2023

I.S. Sieves Size		Weight of Retained Sample on Each Sieve (minimum 200 Pieces) (gm)	Flakiness Index		Elongation Index	
Passing through IS Sieves (mm)	Retained on IS Sieves (mm)		Thickness Gauge	Weight of Aggregates in each fraction passing on thickness gauges (gm)	Length Gauge	Weight of Aggregates in Fraction retained on length gauges (gm)
63	50	0	33.9	0	-	0
50	40	0	27	0	81	0
40	25	0	19.5	0	58.5	0
31.5	25	0	16.95	0	-	0
25	20	1436.85	13.5	116.85	40.5	134.85
20	16	1583.64	10.8	262.64	32.4	289.64
16	12.5	849.61	8.55	44.61	25.6	51.61
12.5	10	480.26	6.75	82.26	20.2	88.26
10	6.3	250.76	4.89	72.76	14.7	79.76
	SW	4601.12	SWf	579.12	SWe	644.12

akiness Index 12.92 %
ngation Index 14.37 %
mbined Flakiness and Elongation Indices : 27.29 %

mments: Maximum allowable Combined Flakiness and Elongation Indices for DBM is 35%.

e:
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Test Report
Aggregate Stripping Value

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 6241 - 1971 & Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Aggregates / Bitumen
Sample No	1
Tested Date	1-Apr-2023
Type of Aggregate	Coarse Aggregate
Type of Binder	Coarse Aggregate
Percentage of Binder Used	5% by weight
Total weight of Aggregate	200 gms
Total weight of Binder	10 gms
Temperature of water bath	40^0C

Observation Number	Stripping Percentage	Average Percentage	Average Retained Coating (%)
1	3.5	3.67	96.33
2	3.6		
3	3.9		

Comments: **Minimum allowable Aggregate Stripping Value for Dense Bituminous Macadam is 95%**

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Test Report

Specific Gravity and Water Absorption

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS: 2386 (Part - 111) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Aggregates
Sample No	1
Sample Collection Date	31-Mar-2023
Tested Date	1-Apr-2023

Sl. No.	Particulars	Computations	Test Numbers		Mean
			Test 1	Test 2	
1	Weight of Empty Basket Immersed in Water	W_1 g	761	763	
2	Wt of Basket Filled with Aggregates Immersed in water	W_2g	2047	2065	
3	Weight of Saturated Aggregate in water	$W_s g = W_2 - W_1$	1286	1302	
4	Weight of saturated surface dry aggregate in Air	W_3 g	2082	2090	
5	Weight of water equal to the Volume of the Aggregate	$W_3 - W_s$	796	788	
6	Weight of Oven dried Aggregate	W_4g	2047	2053	
7	Specific Gravity	$W_4/(W_3 - W_s)$	2.57	2.61	2.59
8	Apparent Specific Gravity	$W_4/(W_4 - W_s)$	2.69	2.73	2.71
9	Water Absorption	$(W_4 - W_3)*100/W_4$	1.71	1.8	1.76

Comments: Maximum allowable Aggregate Water Absorption value for Dense bituminous Macadam is 2.0%.

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Test Report
Aggregate Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Exceecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	At Plant
Material	Aggregates
Sample No	1
Sample Collection Date	31-Mar-2023
Tested Date	3-Apr-2023

Weight of Sample: 10950 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.5	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	486.26	4.44	4.44	95.56	90-100	
3	19	1453.27	13.27	17.71	82.29	71-95	
4	13.2	1570.64	14.34	32.06	67.94	56-80	
5	4.75	2205.36	20.14	52.20	47.80	38-54	
6	2.36	1478.65	13.50	65.70	34.30	28-42	
7	0.3	2157.34	19.70	85.40	14.60	7-21	
8	0.075	1123.36	10.26	95.66	4.34	2-8	

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Test Report
Aggregate Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	At Plant
Material	Aggregates
Sample No	2
Sample Collection Date	31-Mar-2023
Tested Date	3-Apr-2023

Weight of Sample: 10890 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.5	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	508.62	4.67	4.67	95.33	90-100	
3	19	1478.36	13.58	18.25	81.75	71-95	
4	13.2	1590.36	14.60	32.85	67.15	56-80	
5	4.75	2223.36	20.42	53.27	46.73	38-54	
6	2.36	1498.65	13.76	67.03	32.97	28-42	
7	0.3	2177.34	19.99	87.02	12.98	7-21	
8	0.075	986.15	9.06	96.08	3.92	2-8	

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Test Report
Stability of Mix

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Sample No	1
Tested Date	6-Apr-2023

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.6	9 KN (min)
2	Marshal Flow	mm	4.1	2 – 5 mm
3	Percent of Air Voids in mix	%	4.3	3 - 6
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	69	65 – 75 %
5	Density	g/cc	2.3	-

Note:

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Test Report
Stability of Mix

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Sample No	2
Tested Date	6-Apr-2023

Sl. No.	Description	Unit	Test 2	Requirements as per MORT&H
1	Marshal Stability	KN	9.3	9 KN (min)
2	Marshal Flow	mm	3.6	2 – 5 mm
3	Percent of Air Voids in mix	%	3.1	3 - 6
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 – 75 %
5	Density	g/cc	2.3	-

Note:

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Test Report
Binder Content and Mix Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Sample No	1
Tested Date	6-Apr-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_{sb})	gm	w_{sb}	1732
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	652
4	Weight of bowl + Sample after extraction (w_{sa})	gm	w_{sa}	1700
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	620
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	32
10	Weight of the Bitumen with considering Filter paper (W_a)	(%)	$W_a = w_b - F_d$	31
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)		$W_a / SbX100$	4.75

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.5	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded bituminous macadam
2	26.5	38.69	6.24	6.24	93.76	90-100	
3	19	75.36	12.15	18.40	81.60	71-95	
4	13.2	98.46	15.88	34.28	65.72	56-80	
5	4.75	78.94	12.73	47.01	52.99	38-54	
6	2.36	55.94	9.02	56.03	43.97	28-42	
7	0.3	69.45	11.20	67.23	32.77	7-21	
8	0.075	61.36	9.90	77.13	22.87	2-8	

For Mecadez Core Technologies Private Limited

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Test Report
Binder Content and Mix Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BYP/PMC/W-74/P-3599/2022-23/OR
Mix Type	Dense Graded Bituminous Macadam (DBM)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Sample No	2
Tested Date	6-Apr-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E_b)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_s	1748
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_s - Eb$	668
4	Weight of bowl + Sample after extraction (w_a)	gm	w_a	1716
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_a - Eb$	636
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3
8	Weight of filler on filter paper (F_c)	gm	$F_c = F_b - F_a$	1
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	32
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b - F_c$	31
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_b$)	(%)	$W_a / SbX100$	4.64

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.5	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded bituminous macadam
2	26.5	25.4	3.99	3.99	96.01	90-100	
3	19	75.91	11.94	15.93	84.07	71-95	
4	13.2	103.65	16.30	32.23	67.77	56-80	
5	4.75	98.46	15.48	47.71	52.29	38-54	
6	2.36	56.42	8.87	56.58	43.42	28-42	
7	0.3	50.62	7.96	64.54	35.46	7-21	
8	0.075	80.29	12.62	77.16	22.84	2-8	

For Mecadez Core Technologies Private Limited

Authorised Signatory

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Summary of Frequencies of Field Tests and Lab Tests Conducted

Name of the work: Package No.06 Consists of 14 Works

Job No: MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR

Contractor M/s SMLP Aspahalts

Sl. No	Particulars of the Tests	Bituminous Concrete (BC)			
		Quantity Cum	Frequency of Tests	Tests Required	Tests Carried Out
1	Quality of Binder	185.52	2 Test / lot	2	2
2	Rate of Spread of Tack Coat/ Prime Coat		3 Test / Day	3	3
3	Aggregate Impact Value		1 Test / 350 m^3	1	1
4	Combined Flakiness & Elongation Indices		1 Test / 350 m^3	1	1
5	Aggregate Stripping Value		1Test / Source of Supply	1	1
6	Specific Gravity & Water Absorption of Aggregates		1Test / Source of Supply	1	1
7	Aggregate gradation		2 Test / day	2	2
8	Marshal Stability of the Mix		1 Test/400 tonnes (Min. 2 Test)	2	2
9	Binder content and Mix Gradation		1 Test/400 tonnes (Min. 2 Test)	2	2

Note: Frequency of tests as per Specifications MORT&H, V Revision, Section 900.

Consultant

Contractor

ASSISTANT ENGINEER

ASSISTANT EXE ENGINEER
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Quality of Bitumen

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 73 – 2013 (Paving Bitumen) & Specification for Road & Bridge Works, MORT&H, Revision V.
Grade of Bitumen	VG30
Location	Hot Mix Plant
Material	Bitumen
Sample No	1
Sample Collection Date	1-Apr-2023
Tested Date	2-Apr-2023

Sl. No.	Description	Test Results	Requirement as per IS:73-2013
1	Penetration at 25^{0}C , 1 / 10 mm	47	Min. 45
2	Softening Point, (^{0}C)	51	Min. 47
3	Specific Gravity	1.1	Min. 0.97
4	Ductility at 27^{0}C, in cm	49	Min. 40
5	Flash Point, (^{0}C)	222	Min. 220

Note:

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Test Report
Quality of Bitumen

Project Name	Package No.06 Consists of 14 Works
Client	Exceeutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 73 – 2013 (Paving Bitumen) & Specification for Road & Bridge Works, MORT&H, Revisión V.
Grade of Bitumen	VG30
Location	Hot Mix Plant
Material	Bitumen
Sample No	2
Sample Collection Date	1-Apr-2023
Tested Date	2-Apr-2023

Sl. No.	Description	Test Results	Requirement as per IS:73-2013
1	Penetration at 25^0C , 1 / 10 mm	53	Min. 45
2	Softening Point, (^{0}C)	48	Min. 47
3	Specific Gravity	1.1	Min. 0.97
4	Ductility at 27^0C, in cm	50	Min. 40
5	Flash Point, (^{0}C)	225	Min. 220

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Test Report
Rate of Spread of Tack Coat

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Location	At Site
Material	Bitumen (Tack Coat)
Sample No	1
Tested Date	7-Apr-2023

Sl. No.	Determination	Unit	Test No 1 Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.64	1.64	1.64
4	Final weight of plate after application of Tack Coat (c)	kg	1.652	1.653	1.65
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.012	0.013	0.01
6	Rate of spread (d/a)	kg / m^2	0.3	0.325	0.25
7	Average	kg / m^2	0.292		
8	Specified Limit	kg / m^2	Not less than 0.25 kg / m^2		

Results: Rate of Spread of Tack Coat is: 0.292 kg / m2

Note:

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BBMP, Bangalore

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Test Report
Rate of Spread of Tack Coat

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Asphalts
Location	At Site
Material	Bitumen (Tack Coat)
Sample No	2
Tested Date	7-Apr-2023

Sl. No.	Determination	Unit	Test No 2 Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.64	1.64	1.64
4	Final weight of plate after application of Tack Coat (c)	kg	1.651	1.653	1.652
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.011	0.013	0.012
6	Rate of spread (d/a)	kg / m^2	0.275	0.325	0.3
7	Average	kg / m^2	0.300		
8	Specified Limit	kg / m^2	Not less than 0.25 kg / m^2		

Results: Rate of Spread of Tack Coat is: 0.300 kg / m2

Note:

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Test Report
Rate of Spread of Tack Coat

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Location	At Site
Material	Bitumen (Tack Coat)
Sample-No	3
Tested Date	7-Apr-2023

Sl. No.	Determination	Unit	Test No 3 Longitudinal Distribution		
1	Size of Plate (mxn)	m^2	0.2x0.2	0.2x0.2	0.2x0.2
2	Area of the Plate (a)	m^2	0.04	0.04	0.04
3	Initial weight of the empty Plate (b)	kg	1.64	1.64	1.64
4	Final weight of plate after application of Tack Coat (c)	kg	1.653	1.65	1.651
5	Weight of Prime coat/ Tack Coat (d = c-b)	kg	0.013	0.01	0.011
6	Rate of spread (d/a)	kg / m^2	0.325	0.25	0.275
7	Average	kg / m^2	0.283		
8	Specified Limit	kg / m^2	Not less than 0.25 kg / m^2		

Results: Rate of Spread of Tack Coat is: 0.283 kg / m2

Note:

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Test Report
Aggregate Impact Value

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 4) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregate
Sample No	1
Sample Collection Date	1-Apr-2023
Tesed Date	6-Apr-2023

Sl. No.	Determination	Unit	Trails	
1	Weight of empty cylinder, w1	gm	960	960
2	Weight of container filled with Aggregate, w2	gm	1398	1396
3	Weight of the Aggregate before compaction, (w2 - w1) = w3	gm	438	436
4	Weight of the sample passing through 2.36 mm IS sieves after Impact, w4	gm	90	91
5	Weight of the sample retained on 2.36 mm IS sieve after Impact, w5	gm	348	345
6	Aggregate Impact Value (w4 / w3)x100	%	20.55	20.87
7	Specified Limit	%	24	

Results: Average Aggregate Impact Value: **20.71** %

Note:

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Test Report
Aggregate Particle Shape

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregates
Sample No	1
Sample Collection Date	1-Apr-2023
Teested Date	6-Apr-2023

I.S. Sieves Size		Weight of Retained Sample on Each Sieve (minimum 200 Pieces) (gm)	Flakiness Index		Elongation Index	
Passing through IS Sieves (mm)	Retained on IS Sieves (mm)		Thickness Gauge	Weight of Aggregates in each fraction passing on thickness gauges (gm)	Length Gauge	Weight of Aggregates in Fraction retained on length gauges (gm)
63	50	0	33.9	0	-	0
50	40	0	27	0	81	0
40	25	0	19.5	0	58.5	0
31.5	25	0	16.95	0	-	0
25	20	1596.34	13.5	276.34	40.5	294.34
20	16	1387.36	10.8	66.36	32.4	93.36
16	12.5	981.61	8.55	176.61	25.6	183.61
12.5	10	510.23	6.75	112.23	20.2	118.23
10	6.3	281.65	4.89	103.65	14.7	110.65
	SW	4757.19	SWf	735.19	SWe	800.19

Flakiness Index	15.45	%
Elongation Index	16.82	%

Combined Flakiness and Elongation Indices : 32.27 %

Comments: Maximum allowable Combined Flakiness and Elongation Indices for Bituminous Concrete is 35%.

Note:

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Test Report
Aggregate Stripping Value

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 6241 - 1971 & Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Coarse Aggregates / Bitumen
Sample No	1
Tesed Date	2-Apr-2023
Type of Aggregate	Coarse Aggregate
Type of Binder	60 / 70 Grade
Percentage of Binder Used	5% by weight
Total weight of Aggregate	200 gms
Total weight of Binder	10 gms
Temperature of water bath	40^0C

Observation Number	Stripping Percentage	Average Percentage	Average Retained Coating (%)
1	3.3	3.43	96.57
2	3.6		
3	3.4		

Comments: Minimum allowable Aggregate Stripping Value for Bituminous Concrete is 95%

Note:

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Test Report

Specific Gravity and Water Absorption

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test	IS: 2386 (Part - 111) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregates
Sample No	1
Sapmle Collection Date	1-Apr-2023
Tested Date	2-Apr-2023

Sl. No.	Particulars	Computations	Test Numbers		Mean
			Test 1	Test 2	
1	Weight of Empty Basket Immersed in Water	W_1 g	761	763	
2	Wt of Basket Filled with Aggregates Immersed in water	W_2g	2067	2049	
3	Weight of Saturated Aggregate in water	$W_s g = W_2 - W_1$	1306	1286	
4	Weight of saturated surface dry aggregate in Air	W_3 g	2102	2074	
5	Weight of water equal to the Volume of the Aggregate	$W_3 - W_s$	796	788	
6	Weight of Oven dried Aggregate	W_4g	2064	2043	
7	Specific Gravity	$W_4/(W_3 - W_s)$	2.59	2.59	2.59
8	Apparent Specific Gravity	$W_4/(W_4 - W_s)$	2.72	2.70	2.71
9	Water Absorption	$(W_4 - W_3)*100/W_4$	1.84	1.52	1.68

Comments: Maximum allowable Aggregate Water Absorption value for Bituminous Concrete is 2.0%.

Note:

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Test Report
Aggregate Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Laboratory
Material	Coarse Aggregates
Sample No	1
Sample Collection Date	1-Apr-2023
Tested Date	6-Apr-2023

Weight of Sample: 4000 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	173.26	4.33	4.33	95.67	90-100	
3	9.50	608.35	15.21	19.54	80.46	70-88	
4	4.75	720.36	18.01	37.55	62.45	53-71	
5	2.36	520.46	13.01	50.56	49.44	42-58	
6	1.18	359.36	8.98	59.54	40.46	34-48	
7	0.60	326.79	8.17	67.71	32.29	26-38	
8	0.30	351.37	8.78	76.50	23.50	18-28	
9	0.15	268.49	6.71	83.21	16.79	12-20	
10	0.075	392.89	9.82	93.03	6.97	4-10	

Note:

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For Mecadez Core Technologies Private Limited

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Test Report
Aggregate Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Hot Mix Plant
Material	Coarse Aggregates
Sample No	2
Sample Collection Date	1-Apr-2023
Tested Date	6-Apr-2023

Weight of Sample: 4000 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	179.46	4.49	4.49	95.51	90-100	
3	9.50	609.36	15.23	19.72	80.28	70-88	
4	4.75	723.46	18.09	37.81	62.19	53-71	
5	2.36	526.89	13.17	50.98	49.02	42-58	
6	1.18	364.89	9.12	60.10	39.90	34-48	
7	0.60	338.26	8.46	68.56	31.44	26-38	
8	0.30	354.37	8.86	77.42	22.58	18-28	
9	0.15	271.49	6.79	84.20	15.80	12-20	
10	0.075	396.89	9.92	94.13	5.87	4-10	

Note:

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Test Report
Stability of Mix

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Bituminous Concrete mix
Sample No	1
Tesed Date	7-Apr-2023

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.5	9 KN (min)
2	Marshal Flow	mm	3.3	2 – 4 mm
3	Percent of Air Voids in mix	%	4.6	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	68	65 – 75 %
5	Density	g/cc	2.32	-

Note:

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Test Report
Stability of Mix

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Bituminous Concrete mix
Sample No	2
Tesed Date	7-Apr-2023

Sl. No.	Description	Unit	Test 2	Requirements as per MORT&H
1	Marshal Stability	KN	9.7	9 KN (min)
2	Marshal Flow	mm	3.2	2 – 4 mm
3	Percent of Air Voids in mix	%	4.2	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	70	65 – 75 %
5	Density	g/cc	2.32	-

Note:

i. The results indicated above are based on the tests carried out on the sample at site.
ii. The results relate only to the items tested.
iii. This test report should not be reproduced except in full, without written approval of this laboratory.
iv. Any query regarding the report must be reported immediately.

For Mecadez Core Technologies Private Limited

Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Binder Content and Mix Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Bituminous Concrete mix
Sample No	1
Tesed Date	7-Apr-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1876
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	796
4	Weight of bowl + Sample after extraction (w_a)	gm	w_{sa}	1840
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	760
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	2
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	47
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b - F_d$	45
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	$W_a / SbX100$	5.65

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		
					Test Result	Gradation Limits as per MORT&H	Remarks
1	19	0	0	0	100.00	100	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.2	29.65	3.90	3.90	96.10	90-100	
3	9.5	131.25	17.27	21.17	78.83	70-88	
4	4.75	136.26	17.93	39.10	60.90	53-71	
5	2.36	95.69	12.59	51.69	48.31	42-58	
6	1.18	78.36	10.31	62.00	38.00	34-48	
7	0.6	64.25	8.45	70.46	29.54	26-38	
8	0.3	64.29	8.46	78.91	21.09	18-28	
9	0.15	53.69	7.06	85.98	14.02	12-20	
10	0.075	72.15	9.49	95.47	4.53	4-10	

For Mecadez Core Technologies Private Limited

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Test Report
Binder Content and Mix Gradation

Project Name	Package No.06 Consists of 14 Works
Client	Exceeutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Laboratory
Material	Bituminous Concrete mix
Sample No	2
Tesed Date	7-Apr-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1872
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	792
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1832
5	Weight of Sample after extraction (i.e. washed	gm	$S_a = w_{sa} - Eb$	752
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	2
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	52
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b - F_d$	43
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_b$)	(%)	$W_a / SbX100$	5.43

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.2	42.36	5.63	5.63	94.37	90-100	
3	9.5	106.36	14.14	19.78	80.22	70-88	
4	4.75	142.36	18.93	38.71	61.29	53-71	
5	2.36	82.36	10.95	49.66	50.34	42-58	
6	1.18	91.45	12.16	61.82	38.18	34-48	
7	0.6	61.36	8.16	69.98	30.02	26-38	
8	0.3	58.36	7.76	77.74	22.26	18-28	
9	0.15	46.25	6.15	83.89	16.11	12-20	
10	0.075	65.32	8.69	92.58	7.42	4-10	

For Mecadez Core Technologies Private Limited

Authorised Signature

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Mecadez Core Technologies Private Limited
Temperature Record Log Sheet

Project Name	Package No.06 Consists of 14 Works
Client	Excecutive Engineer - Byatarayanapura Division
Job No	MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR
Mix Type	Dense Graded Bituminous Macadam(DBM)
Contractor	M/s SMLP Aspahalts
Date:	6-Apr-2023

Sl No	Tipper No	Time	Cleaning of the Surface	Application of Tackcoat	Mix Laying Temperature (C^0)	Mix Rolling Temperature (C^0)	Depth of the Mix Before Rolling (mm)	Depth of the Mix After Rolling (mm)	Remarks
1	KA02 AG 4579	6.35AM	Yes	Yes	142.6	90.9	67	50	
2	KA02 AG 4589	7.00AM	Yes	Yes	145.6	92.5	66	50	
3	KA02 AE 4279	7.32AM	Yes	Yes	140.3	91.6	65	50	
4	KA26 A 8642	8.00AM	Yes	Yes	142.6	93.7	67	50	
5	KA02 AG 4579	8.36AM	Yes	Yes	142.5	92.8	66	50	
6	KA02 AG 4589	9.00AM	Yes	Yes	145.9	93.4	66	50	
7	KA02 AE 4279	11.55AM	Yes	Yes	143.5	95.1	66	50	
8	KA26 A 8642	12.20AM	Yes	Yes	140.6	95.7	67	50	
9	KA02 AE 4279	1.00PM	Yes	Yes	148.9	99.5	68	50	

Consultant Representative

Asst Engineer
Byatarayanapura Division
BBMP

Asst.Executive Engineer
Byatarayanapura Division
BBMP

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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For Mecadez Core Technologies Private Limited

Temperature Record Log Sheet

Project Name	*Package No.06 Consists of 14 Works*
Client	*Exceecutive Engineer - Byatarayanapura Division*
Job No	*MCTPL/BBMP/EE/BTP/PMC/W-74/P-3599/2022-23/QR*
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Aspahalts
Date:	7-Apr-2023

Sl No	Tipper No	Time	Cleaning of the Surface	Application of Tackcoat	Mix Laying Temperature (C^0)	Mix Rolling Temperature (C^0)	Depth of the Mix Before Rolling (mm)	Depth of the Mix After Rolling (mm)	Remarks
1	KA02 AG 4579	6.00AM	Yes	Yes	143.5	90.2	53	40	
2	KA02 AG 4589	6.30AM	Yes	Yes	142.3	90.5	53	40	
3	KA02 AE 4279	7.00AM	Yes	Yes	147.9	92.6	54	40	
4	KA26 A 8642	7.30AM	Yes	Yes	145.6	93.5	54	40	
5	KA02 AG 4579	8.10AM	Yes	Yes	142.3	94.2	54	40	
6	KA02 AG 4589	8.55AM	Yes	Yes	147.2	91.5	53	40	
7	KA02 AE 4279	9.19AM	Yes	Yes	146.3	92.7	52	40	
8	KA26 A 8642	9.55AM	Yes	Yes	144.2	90.9	56	40	
9	KA02 AG 4579	10.20AM	Yes	Yes	140.9	92.8	55	40	
10	KA02 AG 4589	10.50AM	Yes	Yes	142.8	96.7	54	40	
11	KA02 AE 4279	11.20AM	Yes	Yes	141.7	93.4	52	40	
12	KA26 A 8642	11.55AM	Yes	Yes	143.6	94.8	52	40	
13	KA02 AG 4579	12.25AM	Yes	Yes	142.3	96.2	51	40	
14	KA02 AG 4589	1.55PM	Yes	Yes	144.5	98.7	52	40	

Consultant Representative

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